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results of BLAST CD'

BLASTP 2.2.6 [Apr-09-2003]

Reference:
Altschul, Stephen F., Thomas L. Madden, Alejandro A. Schäffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997), "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs", Nucleic Acids Res. 25:3389-3402.

RID: 1054223627-02841-5673

Query=
(20 letters)

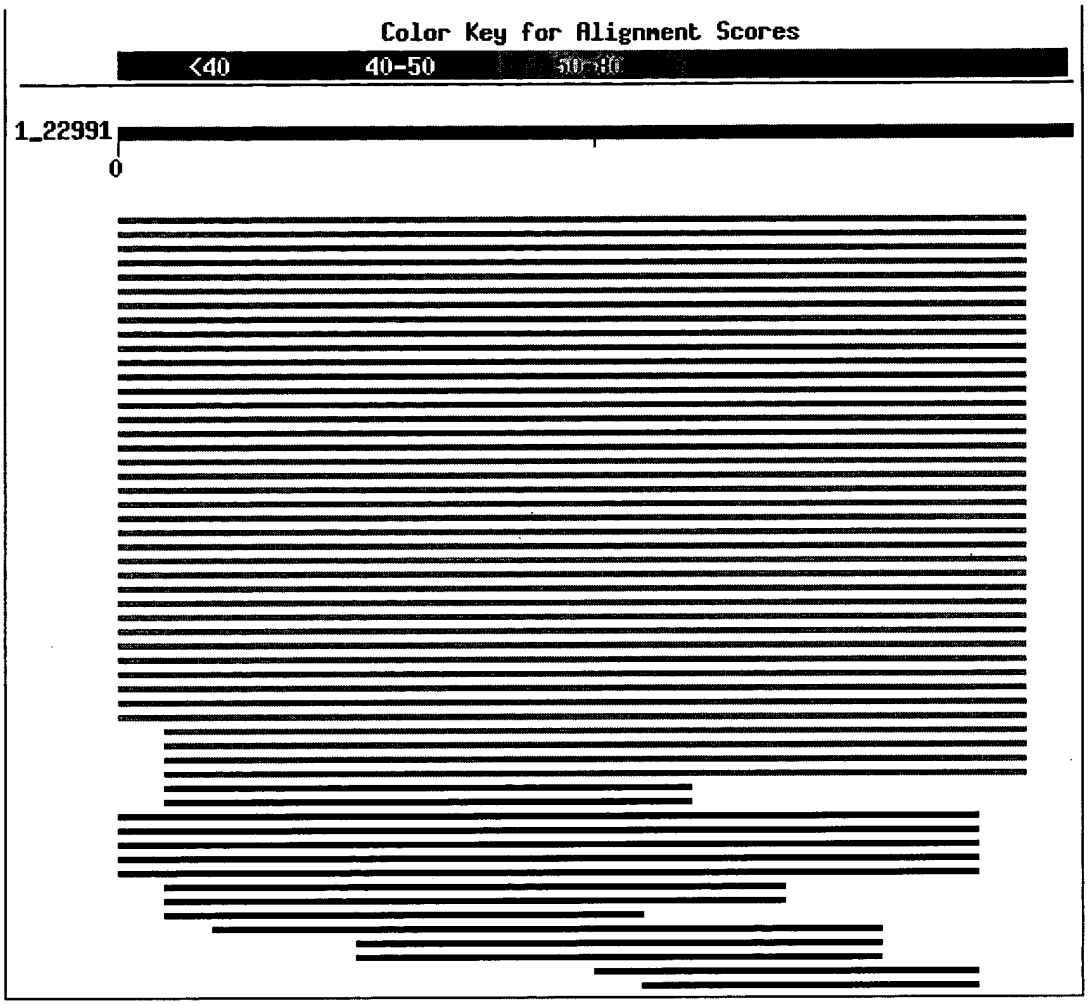
Database: All non-redundant GenBank CDS translations+PDB+SwissProt+PIR+PRF
1,438,044 sequences; 462,300,935 total letters

If you have any problems or questions with the results of this search please refer to the **BLAST FAQs**

Taxonomy reports

Distribution of 125 Blast Hits on the Query Sequence

Mouse-over to show defline and scores. Click to show alignments



Sequences producing significant alignments:	Score (bits)	E Value	
gi|7669518|ref|NP_039253.1| neuregulin 1 isoform SMDF; here...	73	5e-13	L
gi|11066084|gb|AAG28450.1|AF194996_1 glial growth factor GG...	73	5e-13	L
gi|14043365|gb|AAH07675.1|AAH07675 neuregulin 1 [Homo sapie...	73	5e-13	L
gi|7669524|ref|NP_039256.1| neuregulin 1 isoform GGF2; here...	73	5e-13	L
gi|22004078|tpg|DAA00047.1| TPA: neuregulin 1 isoform GGF2 ...	73	5e-13	L
gi|26339516|dbj|BAC33429.1| unnamed protein product [Mus mu...	73	5e-13	
gi|11066086|gb|AAG28451.1|AF194997_1 glial growth factor GG...	73	5e-13	L
gi|7669514|ref|NP_039251.1| neuregulin 1 isoform HRG-beta2;...	73	5e-13	L
gi|408407|gb|AAA19953.1| neu differentiation factor	73	5e-13	L
gi|29373075|gb|AAO72524.1| neuregulin 1-beta 1; NRG1-beta1 ...	73	5e-13	
gi|11066048|gb|AAG28432.1|AF194443_1 SMDF neuregulin beta 3...	73	5e-13	L
gi|482989|pir||B43273 heregulin, splice form beta 1 - human	73	5e-13	
gi|2143869|pir||A56210 neu differentiation factor - rat (fr...	73	5e-13	L
gi|11066038|gb|AAG28427.1|AF194438_1 SMDF neuregulin beta 1...	73	5e-13	L
gi|11066050|gb|AAG28433.1|AF194993_1 glial growth factor be...	73	5e-13	L
gi|2406644|gb|AAC51756.1| gamma-heregulin [Homo sapiens]	73	5e-13	
gi|11066082|gb|AAG28449.1|AF194995_1 glial growth factor GG...	73	5e-13	L
gi|4929183|gb|AAD33893.1|AF142632_1 cysteine-rich domain ne...	73	5e-13	

gi|27806513|ref|NP_776553.1| neuregulin 1 [Bos taurus] >gi|...	73	5e-13	L
gi|9297000|sp|P43322|NRG1_RAT Pro-neuregulin-1 precursor (P...	73	5e-13	L
gi|7669516|ref|NP_039252.1| neuregulin 1 isoform HRG-beta3;...	73	5e-13	L
gi|483138|pir||C43273 heregulin precursor, splice form beta...	73	5e-13	
gi|408391|gb|AAA19945.1| neu differentiation factor	73	5e-13	L
gi|22004072|tpg|DAA00041.1| TPA: neuregulin 1 isoform HRG-b...	73	5e-13	L
gi|349729|gb|AAA72403.1| heregulin beta-1	73	5e-13	
gi|7669522|ref|NP_039255.1| neuregulin 1 isoform GGF; hereg...	73	5e-13	L
gi|30584177|gb|AAP36337.1| Homo sapiens neuregulin 1 [synth...	73	5e-13	
gi|408409|gb|AAA19954.1| neu differentiation factor	73	5e-13	L
gi|11066044|gb|AAG28430.1|AF194441_1 SMDF neuregulin beta 2...	73	5e-13	L
gi|7459696|pir||I38408 neu differentiation factor - human (...	73	5e-13	L
gi|13928798|ref|NP_113776.1| neuregulin 1 [Rattus norvegicu...	73	5e-13	L
gi|28483768|ref|XP_134101.2| RIKEN cDNA D230005F13 gene [Mu...	73	5e-13	L
gi|7669512|ref|NP_039250.1| neuregulin 1 isoform HRG-beta1;...	73	5e-13	L
gi|408393|gb|AAA19946.1| neu differentiation factor	73	5e-13	L
gi|11066046|gb|AAG28431.1|AF194442_1 SMDF neuregulin beta 4...	73	5e-13	L
gi|22004073|tpg|DAA00042.1| TPA: neuregulin 1 isoform HRG-b...	73	5e-13	L
gi|2961137|gb|AAC05671.1| neuregulin beta-2a [Gallus gallus]	70	4e-12	
gi|9297019|sp|Q05199|NRG1_CHICK Pro-neuregulin-1 precursor ...	70	4e-12	
gi|2961139|gb|AAC05672.1| neuregulin beta-2b [Gallus gallus]	70	4e-12	
gi|2961135|gb|AAC05670.1| neuregulin beta-1a [Gallus gallus]	70	4e-12	
gi|2589172|gb|AAB83956.1| mucin Muc3 [Rattus norvegicus]	37	0.036	L
gi|111979|pir||A39321 mucin - rat (fragment) >gi|205546|gb|...	37	0.036	L
gi|9789757|sp|P56974|NRG2_MOUSE Pro-neuregulin-2 precursor ...	36	0.065	
gi|7669532|ref|NP_053586.1| neuregulin 2 isoform 4; neural-...	36	0.065	L
gi|7669528|ref|NP_053584.1| neuregulin 2 isoform 2; neural-...	36	0.065	L
gi|7459670|pir||PC4415 ErbB kinase activator beta, brain an...	36	0.065	
gi|29373063|gb|AAO72523.1| neuregulin 2-beta; NRG2-beta [Mu...	36	0.065	
gi|9055270|ref|NP_061027.1| low density lipoprotein-related...	33	0.38	L
gi|17298318|gb|AAL38110.1| candidate tumor suppressor prote...	33	0.38	L
gi|7459690|pir||T09059 notch4 - mouse >gi|2564947|gb|AAB820...	33	0.51	
gi|6754874|ref|NP_035059.1| Notch gene homolog 4; Notch gen...	33	0.51	L
gi|1401160|gb|AAC52630.1| Notch4	33	0.51	L
gi|27704488|ref|XP_215341.1| similar to Notch gene homolog ...	33	0.51	L
gi|27707180|ref|XP_231213.1| similar to low density lipopro...	32	1.2	L
gi|26330916|dbj|BAC29188.1| unnamed protein product [Mus mu...	32	1.2	L
gi|2583092|gb|AAC53572.1| mucin glycoprotein MUC3 [Mus musc...	32	1.2	L
gi|16519539|ref|NP_443737.1| low density lipoprotein-relate...	32	1.2	L
gi|15929752|gb|AAH15298.1| Muc3 protein [Mus musculus]	32	1.2	L
gi|7434825|pir||T13810 DNA-directed DNA polymerase (EC 2.7....	31	1.7	L
gi|7447799|pir||T13808 DNA-directed DNA polymerase (EC 2.7....	31	1.7	L
gi|19527699|gb|AAL89964.1| AT02241p [Drosophila melanogaster]	31	1.7	L
gi|17136648|ref|NP_476821.1| tamas CG8987-PA [Drosophila me...	31	1.7	L
gi|12231943|gb|AAG49316.1|AF315554_1 notch-like transmembra...	30	3.0	
gi|12231945|gb|AAG49317.1|AF315555_1 notch-like transmembra...	30	3.0	
gi|27692559|ref|XP_223174.1| similar to ATP-binding cassett...	30	4.0	L
gi|17509113|ref|NP_491270.1| EGF-like protein [Caenorhabdit...	29	7.2	L
gi|7508146|pir||T29764 hypothetical protein T21E3.3 - Caeno...	29	7.2	
gi|4321121|gb|AAB17010.2| Notch-3 homolog [Carassius auratus]	29	9.6	
gi|25148980|ref|NP_741938.1| EATing: abnormal pharyngeal pu...	28	13	L

gi|17551376|ref|NP_510564.1| EATing: abnormal pharyngeal pu...	28	13	L
gi|29846961|ref|NP_821149.2| polyprotein [Cucumber yellows ...	28	17	
gi|231890|sp|P30611|CP5N_CANTR Cytochrome P450 52B1 (CYPLII...	28	17	
gi|30172761|sp|Q9ZZ40|CYB_TRIRU Cytochrome b >gi|7430517|pi...	28	17	
gi|29292543|dbj|BAC66370.1| methyltransferase and helicase ...	28	17	
gi|29846963|ref|NP_829886.1| replicase [Cucumber yellows vi...	28	17	
gi|27714165|ref|XP_232818.1| similar to hypothetical protei...	27	23	L
gi|1708864|sp|P98157|LRP1_CHICK Low-density lipoprotein rec...	27	23	
gi|2144165|pir||JC5077 aspartic proteinase (EC 3.4.23.-) - ...	27	31	
gi|17553160|ref|NP_497917.1| Approximately 25 cadherin-repe...	27	31	L
gi|21302216|gb|EAA14361.1| ENSANGP00000002886 [Anopheles ga...	27	31	
gi|15240929|ref|NP_195745.1| glycosyltransferase-related [A...	27	31	
gi|18535661|gb|AAL71862.1| delta protein [Strongylocentrotu...	27	31	
gi|10092259|gb|AAG12672.1|AC027033_7 hypothetical protein; ...	27	31	
gi|17557081|ref|NP_498670.1| EGF-like domain EB module [Cae...	27	31	L
gi|7522619|pir||T30201 Notch homolog protein - sea squirt (...	27	31	
gi|7511304|pir||T34513 hypothetical protein ZK783.1 - Caeno...	27	31	
gi|10720206|sp|O32488|PHOU_ENTCL Phosphate transport system...	27	42	
gi|30174007|gb|EAA00393.2| ENSANGP00000011153 [Anopheles ga...	27	42	
gi|16762476|ref|NP_458093.1| phosphate transport system reg...	27	42	
gi|3449296|dbj|BAA32463.1| MEGF1 [Homo sapiens]	27	42	L
gi|12621132|ref|NP_075243.1| MEGF1 [Rattus norvegicus] >gi|...	27	42	L
gi|22095683|sp|Q9NYQ8|FAT2_HUMAN Protocadherin Fat 2 precur...	27	42	L
gi|13787217|ref|NP_001438.1| FAT tumor suppressor 2 precurs...	27	42	L
gi|21295638|gb|EAA07783.1| ENSANGP00000016814 [Anopheles ga...	27	42	
gi|20539391|ref|XP_166518.1| similar to Neurogenic locus no...	26	56	L
gi|12231947|gb|AAG49318.1|AF315556_1 notch-like transmembra...	26	56	
gi|14042419|dbj|BAB55237.1| unnamed protein product [Homo s...	26	56	
gi|27692463|ref|XP_213998.1| similar to ATP-binding cassett...	26	76	L
gi|13477084|dbj|BAB02997.1| emb|CAB71883.1~gene_id:K17E7.14...	26	76	
gi|15230299|ref|NP_190645.1| glycosyltransferase family 8 [...	26	76	

Alignments

Get selected sequences | Select all | Deselect all

☐ >gi|7669518|ref|NP_039253.1| neuregulin 1 isoform SMDF; heregulin, alpha (45kD, p185-activator); glial growth factor; neu differentiation factor; sensory and motor neuron derived factor [Homo sapiens]

gi|9297048|sp|Q15491|SMDF_HUMAN Neuregulin-1, sensory and motor neuron-derived fact
gi|1082779|pir||A56943 sensory/motor neuron-derived factor - human
gi|862423|gb|AAC41764.1| sensory and motor neuron-derived factor
gi|22004075|tpg|DAA00044.1| TPA: neuregulin 1 isoform SMDF [Homo sapiens]

Length = 296

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 266 KCPNEFTGDRCQNYVMASFY 285
```

☐ >gi|11066084|gb|AAG28450.1|AF194996_1 glial growth factor GGF beta 3. [Rattus no

Length = 323

Score = 72.7 bits (164), Expect = 5e-13

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 Identities = 20/20 (100%), Positives = 20/20 (100%)

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           KCPNEFTGDRCQNYVMASFY
Sbjct: 293 KCPNEFTGDRCQNYVMASFY 312
```

>gi|14043365|gb|AAH07675.1|AAH07675 neuregulin 1 [Homo sapiens]
gi|30583617|gb|AAP36053.1| neuregulin 1 [Homo sapiens]
Length = 296

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 266 KCPNEFTGDRCQNYVMASFY 285
```

>gi|7669524|ref|NP_039256.1| neuregulin 1 isoform GGF2; heregulin, alpha (45kD, p185-activator); glial growth factor; neu differentiation factor; sensory and motor neuron derived factor [Homo sapiens]
gi|422837|pir||S32357 glial growth factor - human
gi|292048|gb|AAB59622.1| recombinant glial growth factor 2
gi|445841|prf||1910316A glial growth factor
Length = 422

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 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 392 KCPNEFTGDRCQNYVMASFY 411
```

>gi|22004078|tpg|DAA00047.1| TPA: neuregulin 1 isoform GGF2 [Homo sapiens]
Length = 422

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 392 KCPNEFTGDRCQNYVMASFY 411
```

>gi|26339516|dbj|BAC33429.1| unnamed protein product [Mus musculus]
Length = 296

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 266 KCPNEFTGDRCQNYVMASFY 285
```

>gi|11066086|gb|AAG28451.1|AF194997_1 glial growth factor GGF beta 4 [Rattus no
Length = 342

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 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 293 KCPNEFTGDRCQNYVMASFY 312
```

>gi|7669514|ref|NP_039251.1| neuregulin 1 isoform HRG-beta2; heregulin, alpha (4
p185-activator); glial growth factor; neu
differentiation factor; sensory and motor neuron derived
factor [Homo sapiens]

gi|183997|gb|AAA58640.1| heregulin-beta2
Length = 637

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1 KCPNEFTGDRCQNYVMASFY 20
KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230

>gi|408407|gb|AAA19953.1| neu differentiation factor
Length = 552

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1 KCPNEFTGDRCQNYVMASFY 20
KCPNEFTGDRCQNYVMASFY
Sbjct: 118 KCPNEFTGDRCQNYVMASFY 137

>gi|29373075|gb|AAO72524.1| neuregulin 1-beta 1; NRG1-beta1 [Mus musculus]
Length = 76

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Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1 KCPNEFTGDRCQNYVMASFY 20
KCPNEFTGDRCQNYVMASFY
Sbjct: 44 KCPNEFTGDRCQNYVMASFY 63

>gi|11066048|gb|AAG28432.1|AF194443_1 SMDF neuregulin beta 3 [Rattus norvegicus]
Length = 256

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

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KCPNEFTGDRCQNYVMASFY
Sbjct: 226 KCPNEFTGDRCQNYVMASFY 245

>gi|482989|pir||B43273 heregulin, splice form beta 1 - human
Length = 645

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1 KCPNEFTGDRCQNYVMASFY 20
KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230

>gi|2143869|pir||A56210 neu differentiation factor - rat (fragment)
gi|408381|gb|AAA19940.1| neu differentiation factor
Length = 230

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1 KCPNEFTGDRCQNYVMASFY 20

```
            KCPNEFTGDRCQNYVMASFY
Sbjct: 200 KCPNEFTGDRCQNYVMASFY 219
```

>gi|11066038|gb|AAG28427.1|AF194438_1 SMDF neuregulin beta 1a [Rattus norvegicus
Length = 700

```
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 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 267 KCPNEFTGDRCQNYVMASFY 286
```

>gi|11066050|gb|AAG28433.1|AF194993_1 glial growth factor beta 1a [Rattus norveg
Length = 782

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 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 349 KCPNEFTGDRCQNYVMASFY 368
```

>gi|2406644|gb|AAC51756.1| gamma-heregulin [Homo sapiens]
Length = 768

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 738 KCPNEFTGDRCQNYVMASFY 757
```

>gi|11066082|gb|AAG28449.1|AF194995_1 glial growth factor GGF beta 2 [Rattus no
Length = 317

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 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 293 KCPNEFTGDRCQNYVMASFY 312
```

>gi|4929183|gb|AAD33893.1|AF142632_1 cysteine-rich domain neuregulin-1 [Xenopus l
Length = 688

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 243 KCPNEFTGDRCQNYVMASFY 262
```

>gi|27806513|ref|NP_776553.1| neuregulin 1 [Bos taurus]
gi|7459664|pir||S32359 glial growth factor - bovine
gi|289414|gb|AAA30540.1| glial growth factor
gi|445843|prf||1910316C glial growth factor
Length = 241

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)
```

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|9297000|sp|P43322|NRG1_RAT Pro-neuregulin-1 precursor (Pro-NRG1) [Contains: Ne
differentiation factor) (Heregulin) (HRG) (Acetylcholine
receptor inducing activity) (ARIA) (Sensory and motor
neuron-derived factor) (Glial growth factor)]
gi|7459673|pir||I61722 neu differentiation factor - rat
gi|408395|gb|AAA19947.1| neu differentiation factor
Length = 662

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|7669516|ref|NP_039252.1| neuregulin 1 isoform HRG-beta3; heregulin, alpha (4
p185-activator); glial growth factor; neu
differentiation factor; sensory and motor neuron derived
factor [Homo sapiens]
gi|183999|gb|AAA58641.1| heregulin-beta3
Length = 241

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|483138|pir||C43273 heregulin precursor, splice form beta-2 - human
Length = 637

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|408391|gb|AAA19945.1| neu differentiation factor
Length = 304

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

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Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|22004072|tpg|DAA00041.1| TPA: neuregulin 1 isoform HRG-beta1 [Homo sapiens]
Length = 645

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Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|349729|gb|AAA72403.1| heregulin beta-1
Length = 68

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
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          KCPNEFTGDRCQNYVMASFY
Sbjct: 35 KCPNEFTGDRCQNYVMASFY 54
```

>gi|7669522|ref|NP_039255.1| neuregulin 1 isoform GGF; heregulin, alpha (45kD, I
p185-activator); glial growth factor; neu
differentiation factor; sensory and motor neuron derived
factor [Homo sapiens]
gi|483200|pir||D43273 heregulin precursor, splice form beta-3 - human
gi|292050|gb|AAB59358.1| recombinant glial growth factor
gi|22004074|tpg|DAA00043.1| TPA: neuregulin 1 isoform HRG-beta3 [Homo sapiens]
gi|22004077|tpg|DAA00046.1| TPA: neuregulin 1 isoform GGF [Homo sapiens]
gi|445842|prf||1910316B glial growth factor
Length = 241

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|30584177|gb|AAP36337.1| Homo sapiens neuregulin 1 [synthetic construct]
Length = 297

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 266 KCPNEFTGDRCQNYVMASFY 285
```

>gi|408409|gb|AAA19954.1| neu differentiation factor
Length = 288

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 93  KCPNEFTGDRCQNYVMASFY 112
```

>gi|11066044|gb|AAG28430.1|AF194441_1 SMDF neuregulin beta 2 [Rattus norvegicus]
Length = 111

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 87  KCPNEFTGDRCQNYVMASFY 106
```

>gi|7459696|pir||I38408 neu differentiation factor - human (fragment)
gi|408411|gb|AAA19955.1| neu differentiation factor

Length = 175

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
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           KCPNEFTGDRCQNYVMASFY
Sbjct: 145 KCPNEFTGDRCQNYVMASFY 164
```

>gi|13928798|ref|NP_113776.1| neuregulin 1 [Rattus norvegicus]
gi|7459671|pir||I61718 neu differentiation factor - rat
gi|408387|gb|AAA19943.1| neu differentiation factor
Length = 636

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|28483768|ref|XP_134101.2| RIKEN cDNA D230005F13 gene [Mus musculus]
Length = 296

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 266 KCPNEFTGDRCQNYVMASFY 285
```

>gi|7669512|ref|NP_039250.1| neuregulin 1 isoform HRG-beta1; heregulin, alpha (
p185-activator); glial growth factor; neu
differentiation factor; sensory and motor neuron derived
factor [Homo sapiens]
gi|183995|gb|AAA58639.1| heregulin-beta1
Length = 645

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|408393|gb|AAA19946.1| neu differentiation factor
Length = 636

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
           KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|11066046|gb|AAG28431.1|AF194442_1 SMDF neuregulin beta 4 [Rattus norvegicus]
Length = 136

Score = 72.7 bits (164), Expect = 5e-13
Identities = 20/20 (100%), Positives = 20/20 (100%)

```
Query: 1   KCPNEFTGDRCQNYVMASFY 20
```

```
            KCPNEFTGDRCQNYVMASFY
Sbjct: 87   KCPNEFTGDRCQNYVMASFY 106
```

>gi|22004073|tpg|DAA00042.1| TPA: neuregulin 1 isoform HRG-beta2 [Homo sapiens]
Length = 637

```
 Score = 72.7 bits (164), Expect = 5e-13
 Identities = 20/20 (100%), Positives = 20/20 (100%)

Query: 1   KCPNEFTGDRCQNYVMASFY 20
            KCPNEFTGDRCQNYVMASFY
Sbjct: 211 KCPNEFTGDRCQNYVMASFY 230
```

>gi|2961137|gb|AAC05671.1| neuregulin beta-2a [Gallus gallus]
Length = 677

```
 Score = 69.8 bits (157), Expect = 4e-12
 Identities = 19/19 (100%), Positives = 19/19 (100%)

Query: 2   CPNEFTGDRCQNYVMASFY 20
            CPNEFTGDRCQNYVMASFY
Sbjct: 254 CPNEFTGDRCQNYVMASFY 272
```

>gi|9297019|sp|Q05199|NRG1_CHICK Pro-neuregulin-1 precursor (Pro-NRG1) [Contains: (Acetylcholine receptor inducing activity) (ARIA)]
gi|1079381|pir||A45769 acetylcholine receptor synthesis stimulator ARIA-1 precursor chicken
gi|212604|gb|AAA49037.1| aria
Length = 602

```
 Score = 69.8 bits (157), Expect = 4e-12
 Identities = 19/19 (100%), Positives = 19/19 (100%)

Query: 2   CPNEFTGDRCQNYVMASFY 20
            CPNEFTGDRCQNYVMASFY
Sbjct: 171 CPNEFTGDRCQNYVMASFY 189
```

>gi|2961139|gb|AAC05672.1| neuregulin beta-2b [Gallus gallus]
Length = 480

```
 Score = 69.8 bits (157), Expect = 4e-12
 Identities = 19/19 (100%), Positives = 19/19 (100%)

Query: 2   CPNEFTGDRCQNYVMASFY 20
            CPNEFTGDRCQNYVMASFY
Sbjct: 254 CPNEFTGDRCQNYVMASFY 272
```

>gi|2961135|gb|AAC05670.1| neuregulin beta-1a [Gallus gallus]
Length = 685

```
 Score = 69.8 bits (157), Expect = 4e-12
 Identities = 19/19 (100%), Positives = 19/19 (100%)

Query: 2   CPNEFTGDRCQNYVMASFY 20
            CPNEFTGDRCQNYVMASFY
Sbjct: 254 CPNEFTGDRCQNYVMASFY 272
```

>gi|2589172|gb|AAB83956.1| mucin Muc3 [Rattus norvegicus]
Length = 379

```
 Score = 36.7 bits (79), Expect = 0.036
 Identities = 10/12 (83%), Positives = 11/12 (91%)
```

```
Query: 2  CPNEFTGDRCQN 13
          CPN F+GDRCQN
Sbjct: 13 CPNGFSGDRCQN 24
```

>gi|111979|pir||A39321 mucin - rat (fragment)
gi|205546|gb|AAA41642.1| mucin
Length = 447

Score = 36.7 bits (79), Expect = 0.036
Identities = 10/12 (83%), Positives = 11/12 (91%)

```
Query: 2   CPNEFTGDRCQN 13
           CPN F+GDRCQN
Sbjct: 369 CPNGFSGDRCQN 380
```

>gi|9789757|sp|P56974|NRG2_MOUSE Pro-neuregulin-2 precursor (Pro-NRG2) [Contains: (NRG-2) (Divergent of neuregulin 1) (DON-1)]
Length = 756

Score = 35.8 bits (77), Expect = 0.065
Identities = 11/19 (57%), Positives = 14/19 (73%)

```
Query: 1   KCPNEFTGDRCQNYVMASF 19
           KCP  +TGDRCQ + M +F
Sbjct: 279 KCPVGYTGDRCQQFAMVNF 297
```

>gi|7669532|ref|NP_053586.1| neuregulin 2 isoform 4; neural- and thymus-derived ErbB kinases [Homo sapiens]
gi|6840976|gb|AAF28851.1| neuregulin 2 isoform 4 [Homo sapiens]
Length = 852

Score = 35.8 bits (77), Expect = 0.065
Identities = 11/19 (57%), Positives = 14/19 (73%)

```
Query: 1   KCPNEFTGDRCQNYVMASF 19
           KCP  +TGDRCQ + M +F
Sbjct: 371 KCPVGYTGDRCQQFAMVNF 389
```

>gi|7669528|ref|NP_053584.1| neuregulin 2 isoform 2; neural- and thymus-derived ErbB kinases [Homo sapiens]
gi|6840974|gb|AAF28849.1| neuregulin 2 isoform 2 [Homo sapiens]
Length = 844

Score = 35.8 bits (77), Expect = 0.065
Identities = 11/19 (57%), Positives = 14/19 (73%)

```
Query: 1   KCPNEFTGDRCQNYVMASF 19
           KCP  +TGDRCQ + M +F
Sbjct: 371 KCPVGYTGDRCQQFAMVNF 389
```

>gi|7459670|pir||PC4415 ErbB kinase activator beta, brain and thymus - rat (fragn
gi|2605634|dbj|BAA23346.1| NTAK beta [Rattus sp.]
Length = 57

Score = 35.8 bits (77), Expect = 0.065
Identities = 11/19 (57%), Positives = 14/19 (73%)

```
Query: 1  KCPNEFTGDRCQNYVMASF 19
          KCP  +TGDRCQ + M +F
Sbjct: 15 KCPVGYTGDRCQQFAMVNF 33
```

>gi|29373063|gb|AAO72523.1| neuregulin 2-beta; NRG2-beta [Mus musculus]

Length = 54

Score = 35.8 bits (77), Expect = 0.065
Identities = 11/19 (57%), Positives = 14/19 (73%)

```
Query: 1  KCPNEFTGDRCQNYVMASF 19
          KCP  +TGDRCQ + M +F
Sbjct: 28 KCPVGYTGDRCQQFAMVNF 46
```

>gi|9055270|ref|NP_061027.1| low density lipoprotein-related protein 1B (deletec
density lipoprotein receptor related protein-deleted in
tumor [Homo sapiens]
gi|7861733|gb|AAF70379.1|AF176832_1 low density lipoprotein receptor related prot
[Homo sapiens]
Length = 4599

Score = 33.3 bits (71), Expect = 0.38
Identities = 10/14 (71%), Positives = 11/14 (78%)

```
Query: 2    CPNEFTGDRCQNYV 15
          C  E+TGDRCQ YV
Sbjct: 4311 CQPEYTGDRCQYYV 4324
```

>gi|17298318|gb|AAL38110.1| candidate tumor suppressor protein [Homo sapiens]
Length = 172

Score = 33.3 bits (71), Expect = 0.38
Identities = 10/14 (71%), Positives = 11/14 (78%)

```
Query: 2  CPNEFTGDRCQNYV 15
          C  E+TGDRCQ YV
Sbjct: 42 CQPEYTGDRCQYYV 55
```

>gi|7459690|pir||T09059 notch4 - mouse
gi|2564947|gb|AAB82004.1| notch4 [Mus musculus]
Length = 1964

Score = 32.9 bits (70), Expect = 0.51
Identities = 9/11 (81%), Positives = 10/11 (90%)

```
Query: 2   CPNEFTGDRCQ 12
          CP+ FTGDRCQ
Sbjct: 102 CPSGFTGDRCQ 112
```

Score = 19.3 bits (38), Expect = 6216
Identities = 5/7 (71%), Positives = 6/7 (85%)

```
Query: 6   FTGDRCQ 12
          FTG RC+
Sbjct: 540 FTGARCE 546
```

Get selected sequences | Select all | Deselect all

Database: All non-redundant GenBank CDS
translations+PDB+SwissProt+PIR+PRF
Posted date: May 29, 2003 2:04 AM
Number of letters in database: 462,300,935
Number of sequences in database: 1,438,044

```
Lambda     K      H
```

```
    0.343    0.280     1.98

Gapped
Lambda      K       H
    0.294    0.110    0.610


Matrix: PAM30
Gap Penalties: Existence: 9, Extension: 1
Number of Hits to DB: 24,918,002
Number of Sequences: 1438044
Number of extensions: 488106
Number of successful extensions: 7877
Number of sequences better than 20000.0: 100
Number of HSP's better than 20000.0 without gapping: 7521
Number of HSP's successfully gapped in prelim test: 0
Number of HSP's that attempted gapping in prelim test: 0
Number of HSP's gapped (non-prelim): 7871
length of query: 20
length of database: 462,300,935
effective HSP length: 11
effective length of query: 9
effective length of database: 446,482,451
effective search space: 4018342059
effective search space used: 4018342059
T: 11
A: 40
X1: 15 ( 7.4 bits)
X2: 35 (14.8 bits)
X3: 58 (24.6 bits)
S1: 35 (19.1 bits)
S2: 35 (18.0 bits)
```

1: NP_039253. neuregulin 1 isof...[gi:7669518] BLink, Links

LOCUS NRG1 296 aa linear PRI 06-APR-2003
DEFINITION neuregulin 1 isoform SMDF; heregulin, alpha (45kD, ERBB2 p185-activator); glial growth factor; neu differentiation factor; sensory and motor neuron derived factor [Homo sapiens].
ACCESSION NP_039253
VERSION NP_039253.1 GI:7669518
DBSOURCE REFSEQ: accession NM_013959.1
KEYWORDS .
SOURCE Homo sapiens (human)
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (residues 1 to 296)
AUTHORS Chaudhury,A.R., Gerecke,K.M., Wyss,J.M., Morgan,D.G., Gordon,M.N. and Carroll,S.L.
TITLE Neuregulin-1 and erbB4 immunoreactivity is associated with neuritic plaques in Alzheimer disease brain and in a transgenic model of Alzheimer disease
JOURNAL J. Neuropathol. Exp. Neurol. 62 (1), 42-54 (2003)
MEDLINE 22416151
PUBMED 12528817
REMARK GeneRIF: Synaptic loss, gliosis, inflammation, and neuronal death occurring in Alzheimer disease is associated with altered expression of NRG-1 and its receptors (the erbB membrane tyrosine kinases).
REFERENCE 2 (residues 1 to 296)
AUTHORS Miralem,T. and Avraham,H.K.
TITLE Extracellular matrix enhances heregulin-dependent BRCA1 phosphorylation and suppresses BRCA1 expression through its C terminus
JOURNAL Mol. Cell. Biol. 23 (2), 579-593 (2003)
MEDLINE 22397817
PUBMED 12509456
REMARK GeneRIF: heregulin downregulates BRCA1 in the extracellular matrix of breast cancer cells
REFERENCE 3 (residues 1 to 296)
AUTHORS Stefansson,H., Sarginson,J., Kong,A., Yates,P., Steinthorsdottir,V., Gudfinnsson,E., Gunnarsdottir,S., Walker,N., Petursson,H., Crombie,C., Ingason,A., Gulcher,J.R., Stefansson,K. and St Clair,D.
TITLE Association of neuregulin 1 with schizophrenia confirmed in a Scottish population
JOURNAL Am. J. Hum. Genet. 72 (1), 83-87 (2003)
MEDLINE 22375654
PUBMED 12478479
REMARK GeneRIF: Association of neuregulin 1 with schizophrenia confirmed in a Scottish population
REFERENCE 4 (residues 1 to 296)
AUTHORS Stefansson,H., Sigurdsson,E., Steinthorsdottir,V., Bjornsdottir,S., Sigmundsson,T., Ghosh,S., Brynjolfsson,J., Gunnarsdottir,S., Ivarsson,O., Chou,T.T., Hjaltason,O., Birgisdottir,B., Jonsson,H.,

Gudnadottir,V.G., Gudmundsdottir,E., Bjornsson,A., Ingvarsson,B., Ingason,A., Sigfusson,S., Hardardottir,H., Harvey,R.P., Lai,D., Zhou,M., Brunner,D., Mutel,V., Gonzalo,A., Lemke,G., Sainz,J., Johannesson,G., Andresson,T., Gudbjartsson,D., Manolescu,A., Frigge,M.L., Gurney,M.E., Kong,A., Gulcher,J.R., Petursson,H. and Stefansson,K.

TITLE Neuregulin 1 and susceptibility to schizophrenia
JOURNAL Am. J. Hum. Genet. 71 (4), 877-892 (2002)
MEDLINE 22233215
PUBMED 12145742
REMARK GeneRIF: the behavioral phenotypes of the NRG1 hypomorphs are partially reversible with clozapine, an atypical antipsychotic drug used to treat schizophrenia.

REFERENCE 5 (residues 1 to 296)
AUTHORS Liu,J. and Kern,J.A.
TITLE Neuregulin-1 activates the JAK-STAT pathway and regulates lung epithelial cell proliferation
JOURNAL Am. J. Respir. Cell Mol. Biol. 27 (3), 306-313 (2002)
MEDLINE 22193434
PUBMED 12204892
REMARK GeneRIF: NRG-1 activates the JAK-STAT signal transduction pathway through its high-affinity receptor, the HER2/HER3 heterodimer. This pathway plays an important role in NRG-1-stimulated proliferation of pulmonary epithelial cells.

REFERENCE 6 (residues 1 to 296)
AUTHORS Talukder,A.H., Wang,R.A. and Kumar,R.
TITLE Expression and transactivating functions of the bZIP transcription factor GADD153 in mammary epithelial cells
JOURNAL Oncogene 21 (27), 4289-4300 (2002)
MEDLINE 22077736
PUBMED 12082616
REMARK GeneRIF: HRG stimulation of mammary epithelial cells induces the expression of GADD153 mRNA and protein and transcription of GADD153 promoter.

REFERENCE 7 (residues 1 to 296)
AUTHORS Cabedo,H., Luna,C., Fernandez,A.M., Gallar,J. and Ferrer-Montiel,A.
TITLE Molecular determinants of the sensory and motor neuron-derived factor insertion into plasma membrane
JOURNAL J. Biol. Chem. 277 (22), 19905-19912 (2002)
MEDLINE 22028052
PUBMED 11896060
REMARK GeneRIF: Molecular determinants of the sensory and motor neuron-derived factor insertion into plasma membrane

REFERENCE 8 (residues 1 to 296)
AUTHORS Landgraf,R., Fischer,D. and Eisenberg,D.
TITLE Analysis of heregulin symmetry by weighted evolutionary tracing
JOURNAL Protein Eng. 12 (11), 943-951 (1999)
MEDLINE 20054766
PUBMED 10585499

REFERENCE 9 (residues 1 to 296)
AUTHORS Meyer,D., Yamaai,T., Garratt,A., Riethmacher-Sonnenberg,E., Kane,D., Theill,L.E. and Birchmeier,C.
TITLE Isoform-specific expression and function of neuregulin
JOURNAL Development 124 (18), 3575-3586 (1997)
MEDLINE 98000097
PUBMED 9342050

REFERENCE 10 (residues 1 to 296)
AUTHORS Schaefer,G., Fitzpatrick,V.D. and Sliwkowski,M.X.
TITLE Gamma-heregulin: a novel heregulin isoform that is an autocrine growth factor for the human breast cancer cell line, MDA-MB-175
JOURNAL Oncogene 15 (12), 1385-1394 (1997)
MEDLINE 97472144
PUBMED 9333014

REFERENCE 11 (residues 1 to 296)
AUTHORS Ho,W.H., Armanini,M.P., Nuijens,A., Phillips,H.S. and Osheroff,P.L.

TITLE Sensory and motor neuron-derived factor. A novel heregulin variant highly expressed in sensory and motor neurons
JOURNAL J. Biol. Chem. 270 (24), 14523-14532 (1995)
MEDLINE 95301541
PUBMED 7782315
REFERENCE 12 (residues 1 to 296)
AUTHORS Wen,D., Suggs,S.V., Karunagaran,D., Liu,N., Cupples,R.L., Luo,Y., Janssen,A.M., Ben-Baruch,N., Trollinger,D.B., Jacobsen,V.L. et al.
TITLE Structural and functional aspects of the multiplicity of Neu differentiation factors
JOURNAL Mol. Cell. Biol. 14 (3), 1909-1919 (1994)
MEDLINE 94158863
PUBMED 7509448
REFERENCE 13 (residues 1 to 296)
AUTHORS Lee,J. and Wood,W.I.
TITLE Assignment of heregulin (HGL) to human chromosome 8p22-p11 by PCR analysis of somatic cell hybrid DNA
JOURNAL Genomics 16 (3), 790-791 (1993)
MEDLINE 93315185
PUBMED 8325659
REFERENCE 14 (residues 1 to 296)
AUTHORS Marchionni,M.A., Goodearl,A.D., Chen,M.S., Bermingham-McDonogh,O., Kirk,C., Hendricks,M., Danehy,F., Misumi,D., Sudhalter,J., Kobayashi,K. et al.
TITLE Glial growth factors are alternatively spliced erbB2 ligands expressed in the nervous system
JOURNAL Nature 362 (6418), 312-318 (1993)
MEDLINE 93205115
PUBMED 8096067
REFERENCE 15 (residues 1 to 296)
AUTHORS Orr-Urtreger,A., Trakhtenbrot,L., Ben-Levy,R., Wen,D., Rechavi,G., Lonai,P. and Yarden,Y.
TITLE Neural expression and chromosomal mapping of Neu differentiation factor to 8p12-p21
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 90 (5), 1867-1871 (1993)
MEDLINE 93189598
PUBMED 8095334
REFERENCE 16 (residues 1 to 296)
AUTHORS Lupu,R. and Lippman,M.E.
TITLE William L. McGuire Memorial Symposium. The role of erbB2 signal transduction pathways in human breast cancer
JOURNAL Breast Cancer Res. Treat. 27 (1-2), 83-93 (1993)
MEDLINE 94083684
PUBMED 7903175
REFERENCE 17 (residues 1 to 296)
AUTHORS Holmes,W.E., Sliwkowski,M.X., Akita,R.W., Henzel,W.J., Lee,J., Park,J.W., Yansura,D., Abadi,N., Raab,H., Lewis,G.D. et al.
TITLE Identification of heregulin, a specific activator of p185erbB2
JOURNAL Science 256 (5060), 1205-1210 (1992)
MEDLINE 92271253
PUBMED 1350381
COMMENT REVIEWED REFSEQ: This record has been curated by NCBI staff. The reference sequence was derived from L41827.1.

Summary: Neuregulin 1 (NRG1) was originally identified as a 44-kD glycoprotein that interacts with the NEU/ERBB2 receptor tyrosine kinase to increase its phosphorylation on tyrosine residues. It is known that an extraordinary variety of different isoforms are produced from the NRG1 gene by alternative splicing. These isoforms include heregulins (HRGs), glial growth factors (GGFs) and sensory and motor neuron-derived factor (SMDF). They are tissue-specifically expressed and differ significantly in their structure. The HRG isoforms all contain immunoglobulin (Ig) and epidermal growth factor-like (EGF-like) domains. GGF and GGF2 isoforms contain a kringle-like sequence plus Ig and EGF-like

domains; and the SMDF isoform shares only the EGF-like domain with other isoforms. The receptors for all NRG1 isoforms are the ERBB family of tyrosine kinase transmembrane receptors. Through interaction with ERBB receptors, NRG1 isoforms induce the growth and differentialtion of epithelial, neuronal, glial, and other types of cells.

Transcript Variant: This variant (SMDF) is expressed mainly in the nervous system. It contains a C-terminal EGF-like domain and a unique N-terminal sequence which lacks an Ig-like domain and is distinct from all known HRG-variants.

```
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                     and motor neuron derived factor"
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                     /allele="G"
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                     /coded_by="NM_013959.1:501..1391"
                     /db_xref="LocusID:3084"
                     /db_xref="MIM:142445"
ORIGIN
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       61 cleaerlrgc lnsekicivp ilaclvslcl ciaglkwvfv dkifeydspt hldpgglgqd
      121 piisldataa savwvsseay tspvsraqse sevqvtvqgd kavvsfepsa aptpknrifa
      181 fsflpstaps fpsptrnpev rtpksatqpq ttetnlqtap klstststtg tshlvkcaek
      241 ektfcvngge cfmvkdlsnp srylckcpne ftgdrcqnyv masfyststp flslpe
//
```